

REMARKS

Claim 2 has been cancelled. Claims 3, 4, 10, 12 and 18 have been amended to change their dependency from claim 2 to claim 1. Claims 5 and 19 have been amended to correct the informalities noted by the Action. No new matter has been added. Claims 1, 3-20 are currently pending in the present application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

REJECTION OF CLAIMS 5 & 19 UNDER 35 U.S.C. 112

Claims 5 & 19 are rejected under 35 U.S.C. 112, second paragraph for the reasons set forth in on page 2 of the Action. Specifically, regarding claim 5, the Action states that the phrase, "the plurality of sensors," lacks antecedent basis. In response, claim 5 have been amended to recite "the plurality of sensors of the imaging array." Specifically, regarding claim 19, the Action states that the phrase, "the fingerprint," lacks antecedent basis. In response, claim 19 has been amended to recite "a fingerprint." Accordingly, it is respectfully submitted that claims 5 and 19 now fully comply with the requirements of second paragraph of 35 U.S.C. 112. It is respectfully requested that the rejections of the claims under 35 U.S.C. 112, second paragraph be withdrawn.

REJECTION OF CLAIMS 1, 5, 9, and 20 UNDER 35 U.S.C. 102

Claims 1, 3, 5, and 9 are rejected under 35 U.S.C. 102(e) for the reasons set forth on pages 2 and 3 of the Action. Specifically, claims 1, 3, 5, and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Raynal (U.S. Pat. No. 6,643,389), which is hereinafter referred to as "Raynal" or "the Raynal reference."

The rejections under 35 U.S.C. 102(e) are respectfully traversed, at least insofar as applied to the amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth herein below.

Figure 1 (specifically elements 13, 19 & 27), Column 3, lines 31-37, 38-47, 48-50, Column 4, lines 7-14, 27-29, 30-32, and Column 5, lines 38-47 of the Raynal reference are cited as teaching the fingerprint imager as claimed. It is respectfully submitted that Raynal, whether alone or in combination, fails to teach or suggest the fingerprint imager as claimed.

Specifically, the Raynal reference fails to teach or suggest inter alia the following claim limitations: “a plurality of sensors arranged along a first axis for capturing a sub-image of the fingerprint at one time,” as claimed in claim 1. Sensing array 13 of Raynal is cited for teaching the plurality of sensors as claimed. However, it is respectfully submitted that the sensing array 13 is different from the plurality of sensors as claimed since the plurality of sensors are “arranged along a first axis”, whereas sensing array 13 is “a rectangular array of a plurality of capacitive pixel cells arranged in rows and columns (see FIG. 2 and col.3, lines 37-40). By using multiple rows of cells, the Raynal approach encounters the problems set forth and recited on page 3, lines 3-5 of the Background of the patent application.

The Action also equates mouse 19 with the navigation array as claimed. However, it is respectfully submitted that micro-mouse 19 does not fairly teach or suggest the navigation array as claimed. First, mouse 19 has a construction that is very different from that of the navigation array as claimed. For example, the mouse 19 has a member [that is] physically rotated by movement of the finger concurrently over both sensing element array and member. Col. 5, lines 60-64. In sharp contrast, the navigation array as claimed has “a plurality of sensors for capturing navigation images of a portion of the finger as the fingerprint moves with respect to the navigation array.” It is respectfully noted that the mouse 19 does not

appear to use any sensors, but only uses the rotation of the member (e.g., a track-ball or scroll-device) to measure the speed of the finger.

Second, the mouse 19 operates in a manner that is very different from the operation of the not a navigation array as claimed. Whereas the mouse 19 utilizes rotation of the member to measure the speed of the finger, the navigation array captures navigation images that are then used to determine finger movement. The mouse 19 does not capture any images of the finger, but instead uses the physical rotation of the member to measure speed of the finger. Consequently, rectangular sensory array 13 and mouse device 19 are very different from the imaging array and navigation array, respectively, as claimed.

The dependent claims incorporate all the limitations of the independent claim. In this regard, the dependent claims 5 and 9 also add additional limitations, thereby making the dependent claims a fortiori and independently patentable over the cited references.

In view of the foregoing, it is respectfully submitted that the Raynal reference fails to teach or suggest the optical navigation device as claimed in claims 1, 5 and 9. Accordingly, it is respectfully requested that the claim rejections under 35 U.S.C. section 102(e) be withdrawn.

Regarding method claim 20, Raynal fails to fairly teach or suggest, inter alia, the following claim limitations: "capturing movement information of an object by using a navigation sensor array and the navigation engine," as claimed in claim 1. The reasons advanced previously for patentability of claim 1 over the Raynal reference are equally applicable to claim 20. In summary, the navigation sensor array is not fairly taught of mouse device 19 of Raynal.

In view of the foregoing, it is respectfully submitted that the Raynal reference fails to teach or suggest the method of imaging an object as claimed. Accordingly, it is respectfully requested that the rejection of claim 20 under 35 U.S.C. section 102(e) be withdrawn.

REJECTION OF CLAIMS UNDER 35 U.S.C. 103

Rejection of Claim 17 under 35 U.S.C. 103(a) – Raynal Reference

Claim 17 is rejected under 35 U.S.C. 103(a) for the reasons set forth in paragraph 6 on page 4 of the Action. Specifically, claim 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raynal (U.S. Pat. No. 6,643,389).

The rejections under 35 U.S.C. 103 are respectfully traversed, at least insofar as applied to the amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth hereinbelow.

Column 3, lines 28-47 of the Raynal reference is cited as teaching a rectangular imaging array, but not a 1 by N sensor array as claimed. The Action states that “it would have been obvious in light of Raynal’s disclosure to have modified the rectangular sensor array to a 1 by N sensor array because it requires less space and thereby minimizes the size.”

It is respectfully submitted that Raynal, whether alone or in combination, fails to teach or suggest the fingerprint imager as claimed in claim 17. As advanced previously, Raynal fails to fairly teach several elements set forth in independent claim 1 from which claim 17 depends. Consequently, Raynal is deficient in more ways than simply “not teaching a 1 x N sensor array” as claimed. However, assuming arguendo, that Raynal teaches all the other limitations recited by independent claim 1, which is not conceded, it would not have been obvious to modify Raynal’s rectangular sensor array 13 with its multiple rows and columns architecture into a 1 x N array as claimed.

In view of the foregoing, it is respectfully submitted that the Raynal reference fails to teach or suggest the fingerprint imager as claimed in claim 17. Accordingly, it is respectfully requested that the rejection of claim 17 under 35 U.S.C. section 103(a) be withdrawn.

Rejection of Claims 2-4, 10-12, 15, 18, and 19 under 35 U.S.C. 103(a) – Raynal Reference in
view of Bohn Reference

Claims 2-4, 10-12, 15, 18, and 19 are rejected under 35 U.S.C. 103(a) for the reasons set forth in paragraph 7 of the Action on pages 4 to 8. Specifically, claims 2-4, 10-12, 15, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raynal et al. (U.S. Pat. No. 6,643,389), in view of Bohn et al. (U.S. Pat. No. 6,207,945), which is hereinafter referred to as the Bohn reference.

The rejections under 35 U.S.C. 103 are respectfully traversed, at least insofar as applied to the amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth hereinbelow.

The Raynal reference, whether alone or in combination with Bohn, fails to teach or suggest “an imaging array having a plurality of sensors arranged along a first axis for capturing a sub-image of the fingerprint at one time; wherein the fingerprint is moved with respect to the imaging array in a direction that is generally perpendicular to the first axis,” as claimed.

It is respectfully noted that the hand-held scanner of Bohn moves with respect to a fixed image (e.g., text). See col. 8, lines 17-18. In contrast, the fingerprint imager is stationary, and the fingerprint is moved with respect to the imaging array in a direction that is generally perpendicular to the first axis, as claimed.

As advanced hereinafter, the Raynal and Bohn references are very different approaches to very different problems. The Raynal reference is directed to a fingerprint imager that is the general field of the claimed invention. In sharp contrast, the Bohn reference is directed to imaging device (i.e., a hand-held scanner), which, as can be appreciated, is very different application from capturing fingerprints or imaging fingerprints.

For example, the field of invention of the Raynal patent is very different from the field of invention of the Bohn patent. While the field of invention of the Raynal patent is directed to the field of “methods of and system for capturing fingerprint images,” the field of invention of the Bohn patent is directed to “position sensing devices and, more particularly, to a hand-held scanner having a position sensing device integrated into the imaging portion of the hand-held scanner.”

Furthermore, it is not insignificant that the International class and U.S. class/subclass for the Raynal patent and the Bohn patent are different. Moreover, the field of search for the Raynal patent is different than the field of search for the Bohn patent.

These factors militate against the conclusory statement found in the Action that states, “it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the navigation array and navigation circuit disclosed by Raynal to include capturing images and determining movement information along a first and second axis as taught by Bohn because it provides greater accuracy in determining the relative movement between the object and the imager.”

Furthermore, there does not appear to be anything in the cited references that teach or suggest that the Raynal approach is inaccurate or requires greater accuracy. In addition, it is certainly less than clear from the cited references that the sensors 130, 132 of the Bohn approach is more accurate than mouse 19 of Raynal since the different applications have

different requirements and different ways to define and measure accuracy. For example, the detection of the movement of a finger involves different considerations and requirements than the movement of a hand-held scanner across a page of text.

Moreover, in addition to missing a motivation to combine, the actual combination as proposed by the Action is highly suspect because there is no indication that the proposed combination would operate, given the differing requirements and design considerations of these different applications. Consequently, it is respectfully submitted that without the teachings of the present invention, the incorporation of a navigation array with an imaging array in a fingerprint imager would not be obvious. Furthermore, Raynal would not be combined with Bohn because of the differences in the field of invention, differences in the type of problem being solved, differences in design considerations, and differences in the overall approach the different design considerations. Accordingly, it appears that the Raynal approach is a complete system that does not require any modification or added complexity.

Furthermore, the Federal Circuit has held, "It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." (quoting In re Fine, 837 F.2d 1071, 1075, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988)), In re Fritch, 23 USPQ 2d 1780, 1784 (Fed. Cir. 1992).

It is respectfully submitted that the claimed invention has been improperly used as an instruction manual or "template" to piece together the teachings of the Raynal reference and the Bohn reference so that the claimed invention is rendered obvious. Accordingly, for these reasons, and for the reasons discussed above, it is respectfully submitted that claims 2-4, 10-

12, 15, 18 and 19 patentably distinguish over Raynal in view of Bohn. Withdrawal of this rejection under 35 U.S.C. section 103(a) is respectfully requested.

Rejection of Claims 13 & 14 under 35 U.S.C. 103(a) – Raynal Reference in view of Akizuki
Reference

Claims 13 & 14 are rejected under 35 U.S.C. 103(a) for the reasons set forth in paragraph 8 of the Action on pages 8 & 9. Specifically, claims 13 & 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raynal et al. (U.S. Pat. No. 6,643,389), in view of Akizuki (U.S. Pat. No. 6,360,004), which is hereinafter referred to as the Akizuki reference.

The Akizuki reference is cited for teaching that “it is known to implement a fingerprint sensor as a touch-pad, or a stand-alone unit, wherein the fingerprint imager further comprises a capacitive sensor having a surface along which a finger is moved and an assembly for housing the capacitive sensor.” In particular, col. 2, lines 62-67 and col. 2, lines 17-20 of Akizuki are cited.

The rejections under 35 U.S.C. 103 are respectfully traversed, at least insofar as applied to the amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth hereinbelow.

It is respectfully submitted that the Raynal reference, whether alone or in combination with Akizuki, fails to teach or suggest “the fingerprint imager is implemented in a stand-alone unit and wherein the fingerprint imager further comprises: a) a capacitive sensor having a surface along which a finger is moved; and b) an assembly for housing the capacitive sensor.” For the reasons advanced previously, which are incorporated herein by reference, Raynal fails to teach or suggest one or more claimed limitations of the independent claims. Akizuki does

not remedy the deficiencies of Raynal's teachings, nor does Akizuki supplement the teachings of Raynal in a manner to render the claimed invention obvious.

Moreover, it is respectfully submitted that the claimed invention has been improperly used as an instruction manual or "template" to piece together the teachings of the Raynal reference and the Akizuki reference so that the claimed invention is rendered obvious.

Accordingly, for these reasons, and for the reasons discussed above, it is respectfully submitted that claims 13 and 14 patentably distinguish over Raynal in view of Akizuki. Withdrawal of this rejection under 35 U.S.C. section 103(a) is respectfully requested.

Rejection of Claim 16 under 35 U.S.C. 103(a) – Raynal Reference in view of the Bohn
Reference Further in view of the Akizuki Reference

Claim 16 is rejected under 35 U.S.C. 103(a) for the reasons set forth in paragraph 9 of the Action on pages 8 and 9. Specifically, claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Raynal et al. (U.S. Pat. No. 6,643,389), in view of Bohn et al. (U.S. Pat. No. 6,207,945), further in view of Akizuki (U.S. Pat. No. 6,360,004).

The rejections under 35 U.S.C. 103 are respectfully traversed, at least insofar as applied to the amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth hereinbelow.

The Raynal reference, whether alone or in combination with Bohn and Akizuki, fails to teach or suggest "an imaging array having a plurality of sensors arranged along a first axis for capturing a sub-image of the fingerprint at one time; wherein the fingerprint is moved with respect to the imaging array in a direction that is generally perpendicular to the first axis; and b) a mechanism for determining a change in the position of the fingerprint with respect to time and controlling the image capture of the imaging array.

Furthermore, as advanced previously, it is respectfully submitted that the claimed invention has been improperly used as an instruction manual or “template” to piece together the teachings of the Raynal reference, the Bohn reference, and the Akizuki reference so that the claimed invention is rendered obvious.

Accordingly, for these reasons, and for the reasons discussed above, it is respectfully submitted that claim 16 patentably distinguishes over Raynal in view of Bohn and Akizuki. Withdrawal of this rejection under 35 U.S.C. section 103(a) is respectfully requested.

Rejection of Claims 6-8 under 35 U.S.C. 103(a) – Raynal Reference in view of Brownlee Reference

Claims 6-8 are rejected under 35 U.S.C. 103(a) for the reasons set forth in paragraph 10 of the Action on page 9. Specifically, claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raynal et al. (U.S. Pat. No. 6,643,389) in view of Brownlee (U.S. Pat. No. 6,282,303), which is hereinafter referred to as the Brownlee reference.

The rejections under 35 U.S.C. 103 are respectfully traversed, at least insofar as applied to the amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth hereinbelow.

The Brownlee reference is cited for teaching the implementation of a fingerprint imager in a stand-alone unit with optics for focusing light onto the surface.

For the reasons advanced previously, which are incorporated herein by reference, Raynal fails to teach or suggest one or more claimed limitations of the independent claims. Brownlee does not remedy the deficiencies of Raynal’s teachings, nor does Brownlee supplement the teachings of Raynal in a manner to render the claimed invention obvious. Specifically, Raynal, whether alone or in combination with Brownlee, fails to teach or

suggest, “a) an imaging array having a plurality of sensors arranged along a first axis for capturing a sub-image of the fingerprint at one time; wherein the fingerprint is moved with respect to the imaging array in a direction that is generally perpendicular to the first axis; and b) a mechanism for determining a change in the position of the fingerprint with respect to time and controlling the image capture of the imaging array,” as claimed.

For example, Brownlee uses a rotation detector to detect the rotational movement of the roller. Apparently, the rotational movement of the roller is then used by Brownlee to recreate the fingerprint by line-image data collected by a linear array imaging sensor. As is evident, the Brownlee scheme is very different from a “mechanism for determining a change in the position of the fingerprint with respect to time and controlling the image capture of the imaging array” as claimed.

Accordingly, for these reasons, and for the reasons discussed above, it is respectfully submitted that claims 6-8 patentably distinguish over Raynal in view of Brownlee. Withdrawal of this rejection under 35 U.S.C. section 103(a) is respectfully requested.

Conclusion

For all the reasons advanced above, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the pending claims are requested, and allowance is earnestly solicited at an early date. The Examiner is invited to telephone the undersigned if the Examiner has any suggestions, thoughts or comments, which might expedite the prosecution of this case.

Respectfully submitted,




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Eric Ho (RN 39,711)

March 22, 2004
(Date)